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## Three True Bugs New to the Virginia Fauna, Including the First Record of the Family Schizopteridae (Heteroptera)

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Twenty-two families of true bugs (Heteroptera) have been treated in the *Insects of Virginia* series (Bobb, 1974; Hoffman, 1971, 1975, 1996a). Notable additional records for these families have been provided by Hoffman (1992, 1994, 1996b, 1999), Hoffman et al. (1998), Hobson et al. (1998), and Stevenson & Roble (1997).

Bobb (1974) monographed the aquatic and semiaquatic heteropteran fauna of Virginia, treating 14 families, 32 genera, and 112 species. Of these taxa, one family (Pleidae), two genera, and 16 species were considered likely to occur in the state on the basis of records from nearby states. To our knowledge, none of these

“hypothetical” species has been documented in Virginia during the past quarter-century. However, Bobb (1974) overlooked Drake & Chapman’s (1953) paper that mentioned unspecified Virginia specimen records for *Neoplea striola* (Fieber), the lone regional representative of the family Pleidae. Like Bobb, neither of us has encountered this species in Virginia, nor have we seen any specimens, suggesting that it is rare in the state. The only recent addition to the aquatic and semiaquatic heteropteran fauna of Virginia is Hoffman’s (1996b) report of the gerrid *Limnoporus dissortis* (Drake & Harris), a species (and genus) not discussed by Bobb (1974).

In this paper, we add another genus of aquatic Heteroptera to the Virginia fauna, provide the first Virginia record of the rarely collected terrestrial family Schizopteridae, and add a species of Miridae to the state tally for this largest family of Heteroptera.

CORIXIDAE

This is the most diverse family of aquatic Heteroptera, occurring worldwide and found in a wide range of aquatic habitats, including brackish water. Bobb (1974) treated five genera and 36 species (including 5 hypotheticals) within the family Corixidae from Virginia, including *Trichocorixa* (6 species), *Palmarcorixa* (3 species), *Corisella* (1 species), *Hesperocorixa* (10 species), and *Sigara* (16 species). The recent capture of *Ramphocorixa acuminata* (Uhler) in southeastern Virginia adds another genus and species of water boatman to the state's fauna. Males of this species are easily recognized by the presence of an elongated, pointed vertex (front portion of head; see figures in Abbott [1912], Froeschner [1962], and Sanderson [1982], among others); females have round vertexes. Other diagnostic characters for this species include the presence of a broad, conspicuous apex of the scutellum and a deeply incised upper margin of the male pala (section of foreleg; Fig. 1).

Collection data are: *City of Suffolk*: Great Dismal Swamp National Wildlife Refuge, Williamson Ditch, 16 May 1998, UV light, S. M. Roble and E. L. Quinter, (1 ♂, 1 ♀; both in VMNH).

Hungerford (1948) reported *R. acuminata* from 13 mostly midwestern and western states (those nearest to

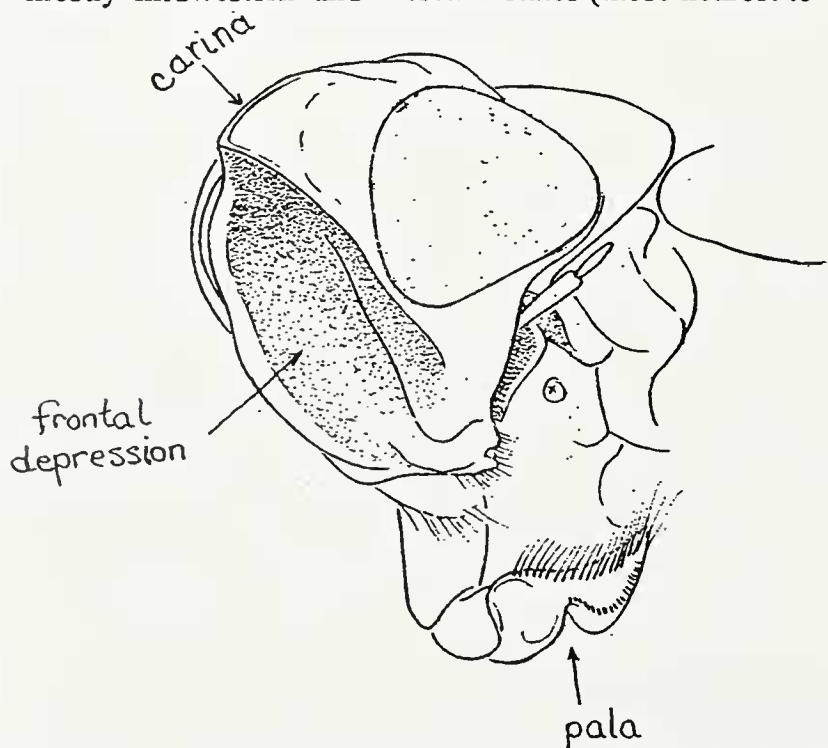


Fig. 1. Anteriolateral view of head region of adult male *Ramphocorixa acuminata*. (Left foreleg removed; attachment point indicated by circled "X".)

Virginia were Ohio and Georgia), the District of Columbia, and Mexico. Hilsenhoff (1970) added a lone record from Wisconsin and Morse et al. (1980) reported *R. acuminata* from South Carolina. Polhemus et al. (1988) gave the same range as Hungerford (1948), except for the addition of Wisconsin and omission of New Mexico. Uhler's (1897) original report (and hence type locality) of *R. acuminata* from Baltimore, Maryland, was discounted by Hungerford (1948) and Polhemus et al. (1988). Hungerford (1948) noted that he found only specimens labeled "Tex." in Uhler's collection and therefore designated one of these as the neotype. Based on this action, Polhemus et al. (1988) recognized Texas as the type locality for *R. acuminata*.

Brimley (1938) did not include *R. acuminata* among the corixids known from North Carolina, and none of the supplements (Brimley, 1942; Wray, 1950, 1967) to his list of that state's insect fauna mentioned new records for this family. Sanderson (1982) attributed this species to the corixid fauna of North and South Carolina without providing any details. Matta (1979) did not record *R. acuminata* during his surveys of the aquatic insect fauna of the Great Dismal Swamp of North Carolina and Virginia.

The natural history of *R. acuminata* was studied in detail by Abbott (1912) and Griffith (1945), both of whom confirmed the unusual oviposition behavior first reported by Forbes (1878). Females of this species preferentially attach their eggs to the bodies (carapace) of crayfish, which may be almost entirely covered by the eggs; however, this relationship is not obligatory. Abbott's (1912) specimens were obtained from a pond, whereas Griffith (1945) reported that the crayfish and corixid are typically found together in water holes (burrows). The eggs of *R. acuminata* may be protected from drought and predators by this relationship. Most corixids overwinter as adults, but Griffith (1945) found viable eggs of *R. acuminata* overwintering on crayfish. He also determined that this species is bivoltine and reported that dissected females had many fully developed eggs in their bodies.

Bobb's (1974:132-133) key to the genera of Virginia corixids can be modified to include *Ramphocorixa* by adding the following couplet:

- 1a. Vertex of males conically produced anteriorly (acuminate), frons deeply concave; pala of male forelegs nearly divided by deep transverse groove on dorsal surface; costal margin of elytra in females with an elongate-ellipsoid, polished thickening at basal third of length.....*Ramphocorixa*

Vertex of males not acuminate; pala of male forelegs without deep transverse groove on dorsal side; costal margin of females not thickened at basal third.....2



## SCHIZOPTERIDAE

The rarely collected family Schizopteridae contains extremely minute (0.8-2.0 mm) true bugs with strongly sclerotized forewings that are most frequently found in damp soil and leaf litter (Slater & Baranowski, 1978). The family is primarily tropical and subtropical in distribution, and very rare in the United States, where it is represented by four species in four genera. One of these species, *Nannocoris arenaria* Blatchley, is known only from Florida and another, *Corixidea major* McAtee & Malloch, only from Tennessee (Slater & Baranowski, 1978; Henry, 1988). A third species, *Schizoptera bispina* McAtee & Malloch, is known in the United States only from Florida, but also occurs in Guatemala and Mexico (Henry, 1988).

The fourth North American member of this family is *Glyptocombus saltator*, which was described by Heidemann (1906) from Plummer's Island, Maryland (Potomac River just outside the District of Columbia). Slater & Baranowski (1978) added reports for Michigan and Tennessee, whereas Henry (1988) indicated that this species was known from Maryland, Michigan, Tennessee, Washington (in error for Washington, DC; corrected by Henry & Froeschner, 1992), and the District of Columbia. Although the total number of collection localities for *G. saltator* is unknown to us, we suspect that it is less than ten, and possibly as few as three or four.

One of us (RLH) has examined several hundred berlese and pitfall samples from all regions of Virginia, and never found *G. saltator* prior to this report, attesting to the rarity of this species in the state. Therefore, we were pleasantly surprised to discover *G. saltator* in pitfall samples obtained by Virginia Division of Natural Heritage personnel. Four specimens were captured in pitfall traps operated in conjunction with two short (5-7 m) sections of drift fence placed near the margins of two semipermanent, interdunal ponds at the Savage Neck Dunes Natural Area Preserve, ca. 6 km SW of Eastville, Northampton County near the southern end of the Delmarva Peninsula. The drift fences and pitfall traps were operated continuously for six months (22 April-28 October 1999) and checked at monthly intervals. Capture dates for the specimens (all males; deposited in VMNH) of *G. saltator* were as follows: 24 June-28 July (1); 27 August-23 September (1); 23 September-28 October (2). Habitat in the vicinity of the drift fences consisted primarily of loblolly pine (*Pinus taeda*), American holly (*Ilex opaca*), and red maple (*Acer rubrum*), with lesser amounts of sweetgum (*Liquidambar styraciflua*) and flowering dogwood (*Cornus florida*). Herbaceous vegetation was sparse and consisted primarily of short, scattered ferns.

A fifth Virginia specimen of *G. saltator* was trapped more than a decade ago, but was only recently discovered

in a collection of millipeds at VMNH. These specimens were captured in a drift fence-pitfall array operated by former Division of Natural Heritage zoologist Kurt A. Buhlmann at the Oceana Naval Air Station, City of Virginia Beach. The specimen of *G. saltator* (♂) was obtained between 14 June and 28 June 1989 from a pitfall trap placed near the jet fuel storage facility on the base; this site is ca. 1 mi/1.6 km SSE jct. U.S. Route 58 and Great Neck Road. The drift fence-pitfall array was operated continuously from 29 March 1989 to 6 February 1990, and checked every 2-3 weeks, but no additional specimens of *G. saltator* were recovered from the trap samples.

Heidemann (1906) noted that *G. saltator* was very difficult to collect, stating that it was "...only to be found by sifting fallen leaves, rubbish, and earth." Collection dates for the type series of four specimens ranged from 9 September to 8 October. We are not aware of the collection dates for the Michigan or Tennessee records of this species. *Glyptocombus saltator* is about 1.5 mm long; its large head and eyes comprise nearly 50% of the total body (Fig. 2). As implied by the species name, this minuscule insect is capable of jumping (Heidemann, 1906), even though the hind femora are not enlarged as in most saltatory species. The life history of *G. saltator* is unknown.

A feature that was not adequately noted in Heidemann's (1906) original description of *G. saltator*, but exhibited by our specimens (particularly that from Oceana Naval Air Station), is enlargement of the distal half of the conspicuously yellowish protibiae, which are densely beset with short, pale setae, producing a diffuse "bottle-brush" appearance.

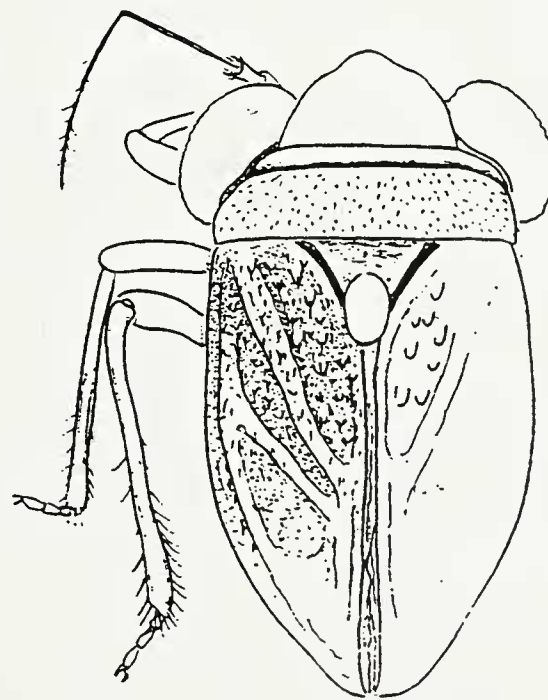


Fig. 2. Dorsal view of adult male *Glyptocombus saltator*.

## MIRIDAE

The plant bug *Parthenicus vaccini* (Van Duzee) appears to have an Atlantic and Gulf coastal distribution, as it has been recorded from Massachusetts, New York, New Jersey, Maryland, Florida, and Mississippi (Henry, 1982; Henry & Wheeler, 1988). The species name was evidently derived from transient specimens captured by sweeping *Vaccinium*; however, concerted efforts by Henry (1978) to collect *P. vaccini* on cranberry and blueberry proved futile. The true host plants were identified by Henry (1978, 1982) as *Hudsonia tomentosa* and *H. ericoides* (Cistaceae); he also noted the capture of a few adults on *Lechea maritima*, another member of this family.

On 6 September 1981, Henry collected *P. vaccini* on *H. tomentosa*, a mat-forming, dune plant commonly known as sand-heather, at the north end of Assateague Island in Worcester Co., Maryland (Henry, 1982). Since the southern portion of this island is in Virginia, and contains habitats virtually identical to those on the Maryland end, it comes as no surprise that *P. vaccini* can now be added to the fauna of the former state. Our collection data are: Accomack Co.: Assateague Island, Chincoteague National Wildlife Refuge, "North Gate" dunes, 2 November 2000, SMR & RLH (1 ♀, VMNH).

Most females of *P. vaccini* are brachypterous (Henry, 1982), as is true of the specimen we swept from clumps of *H. tomentosa* in low, back dune habitats ca. 300 m inland from the Atlantic Ocean. The collection site is 6.5 km south of the Maryland state line (via the coastline) and approximately 30-40 km south of Henry's (1982) collection site at the northern end of Assateague Island.

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